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FUNCTIONAL PSYCHOLOGY AND THE PSYCHOLOGY OF ACT: I¹

By E. B. TITCHENER

§ 1. In the dichotomy by Extension, physical phenomena receive positive and psychical phenomena receive negative determination. In another dichotomy, which is perhaps even more familiar, this relation is reversed: the universe of experience is divided into the Conscious and the Not-conscious, and psychical are identified with conscious phenomena, mind with the totality of consciousness. Psychology thus receives at length a positive definition.²

The word 'consciousness' is, however, notoriously ambiguous;³ and the question whether the adjective 'conscious' suffices to mark off a special class of phenomena must therefore be discussed with great care. It must, moreover, be discussed in two separate contexts. For the psychologists who recognise the independent existence of 'phenomena of consciousness,' as the given objects of psychological investigation, fall at the present time into two principal groups. The one of these emphasises, in a psychology of 'function,' the biological aspect of empirical psychology; the other, in a psychology of 'act,' emphasises its intentional aspect.⁴ Both alike may

¹ In writing a chapter on "The Definition of Psychology: Subject-Matter," for the introductory volume of a Systematic Psychology, I have been obliged to take critical account of functional psychology and the psychology of act. Since it seems fruitless to publish conclusions without giving the evidence on which they rest, and since at the same time a book such as I have planned is not the place for these criticisms of detail, I print my comments in the JOURNAL. The present article deals with functional psychology; a following article will deal with the psychology of act. The first section of the text follows a discussion of the definition of mind, negatively, by "absence of extension" (Bain).

² Moreover, the Not-conscious may be further subdivided, in the interest of biology, into a Living and a Not-living. There can be no doubt that, formally regarded, this classification is superior to that by Extension.

³ The *locus classicus* is A. Bain, *The Emotions and the Will*, 1880, 539ff. Cf. also R. Eisler, *Wörterbuch der philosophischen Begriffe*, i., 1910, 177ff.

⁴ Functional psychology, in this sense, is especially American, and the psychology of act especially German. Recent English psychology, through G. F. Stout (*Anal. Psychol.*, i., 1896, 36, 40), has been influenced by Brentano.

therefore trace their descent from Aristotle.⁵ But in spite of much that they hold in common, the difference of motivation makes it necessary to consider the two groups separately.

In dealing with 'functional' psychology, we shall first examine a single representative system, and shall then bring together, for critical review, what appear to be the major tenets of the school. Systems that are based upon the concept of consciousness, even if this be taken under a single aspect, will inevitably differ; and we find accordingly that the biological emphasis falls differently in different functional psychologies. For Ladd, the 'stream of consciousness' is a life, and mind, the totality of consciousness, is an organism, "a unique and living totality in a course of development,"—an organism living a life of its own, which is always connected with the bodily life, but yet is "in some sort independent of" the body; and functional psychology is the science of the functions or activities of this psychical organism.⁶ Angell, on the other hand, regards consciousness as an organic function,⁷ a phenomenon of control;⁸ "mind," he declares, "seems to involve the master devices" whereby the "adaptive operations of organic life may be made most perfect."⁹ Judd, again, appears to combine both views. At first, consciousness is represented as an organic function, as something which, like the digestive or locomotive function, plays its part in the economy of the organic life under the conditions of the biological struggle for existence; it is thus one of the 'attributes' of man, considered as the highest animal.¹⁰ Later, consciousness is 'possessed' by a knowing self, an unitary being which

⁵ Intentionalism is ascribed to Aristotle on the ground of his doctrine of the relation of sensation to object of sense (*De anima*, 424a, 425b), and of thought to the object of thought (*ibid.*, 429a, 430a, 431b). Cf. also his statement that the objects of memory and imagination (*De mem.*, 450a) and those of thought and desire (*De an.*, 433a; *Met.*, 1072a) are identical.

⁶ G. T. Ladd, *Psychology, Descriptive and Explanatory*, 1894, 638, 659ff.; *Philos. of Mind*, 1895, 400ff., esp. 405; G. T. Ladd and R. S. Woodworth, *Elements of Physiol. Psychol.*, 1911, 656ff.

⁷ J. R. Angell, *Psychology*, 1904, 79. In 1908, 95 the phrase is dropped, but the meaning of the passage appears to remain the same.

⁸ Angell, "The Province of Functional Psychology," *Psychol. Rev.*, xiv., 1907, 88.

⁹ *Psychol.*, 1908, 8. In 1904, 7, "mind seems to be the master device." Cf. also 1904, 50, 86 with 1908, 64, 103. In both editions mind is "an engine for accomplishing the most remarkable adjustments of the organism to its life conditions:" 1904, 379; 1908, 436.

¹⁰ C. H. Judd, *Psychology*, 1917, 4, 161; "Evolution and Consciousness," *Psychol. Rev.*, xvii., 1910, 84.

finds its nearest analogy in the living organism.¹¹ Differences of this sort find their natural expression in the classifications and arrangements and relative emphases of the writers' systematic works. But they have little if any bearing on the question immediately before us; they do not destroy the essential unity of the functional school.

The psychology of 'act' cannot be treated in the same comprehensive way. For here, as we quickly recognise, individual differences are not only inevitable but also fundamental and constitutive, so that the principal systems and programmes must be separately considered. Brentano, of course, furnishes both our starting-point and our constant point of reference. Besides Brentano, we pass under review, either in their own person or in that of some member of their school, Meinong, Stumpf, Lipps, Husserl and Külpe. We then interrupt the course of the exposition, in order to compare and contrast two experimental text-books of intentionalistic psychology, Witasek's *Grundlinien der Psychologie* (1908), which systematises Meinong's views, and Messer's *Psychologie* (1914), which we may regard as, in large measure, a systematisation of the later views of Külpe. The digression will be useful: it will reveal likeness and difference, in kind and in degree, and will thus prepare us for a broader survey of the act-systems. But here, we repeat, it proves impossible to follow the lines laid down by our study of functional psychology. We shall rather enquire, first, into the significance for these systems of the classification of psychical phenomena, and secondly into their treatment of two modes of such phenomena, namely, sensation and attention. The choice of topics is not arbitrary. It is suggested by the foregoing review of the principal systems; and it leads us to certain general conclusions with respect to intentionalism at large.

Ladd's Systematic Psychology

§ 2. We may take, as broadly typical of the functional systems, Ladd's definition of psychology: "the science which describes and explains the phenomena of consciousness, as such."¹² Consciousness, Ladd says, cannot in strictness be defined. Its meaning may, however, be brought out by contrast. "What we are when we are awake, as contrasted with what we are when we sink into a profound and perfectly dreamless sleep, or receive an overpowering blow upon the head—that it is to be conscious. What we are less and less

¹¹ *Psychology*, 274ff. Cf. below, p. 532.

¹² G. T. Ladd, *Psychology, Descriptive and Explanatory*, 1894, 1.

as we sink gradually down into dreamless sleep, or as we swoon slowly away: and what we are more and more, as the noise of the crowd outside tardily arouses us from our after-dinner nap, or as we come out of the midnight darkness of the typhoid-fever crisis—that it is to become conscious.”¹³ For the rest, he commits his case to the “reflective mind of all mankind.” “The distinction between external facts and facts of consciousness, as actually made by every man, furnishes . . . the one peculiar and abiding standpoint of psychology.”¹⁴

It would be foolish, certainly, to require a definition of the indefinable. If we are to deal with the indefinable, we can ask only that it be exhibited. We must insist, however, that it be exhibited clearly and unequivocally, in such wise (to put the matter a little paradoxically) that we can assure ourselves of what the writer’s definition would have been, had he been able to formulate it. Ladd, as we have just now seen, attempts to exhibit the conscious by contrast with the not-conscious. We note, however, with some disquiet that—while psychology is to deal with the facts or phenomena of consciousness—it is ‘we’ and not these facts that are conscious, and that consciousness is made susceptible of degree, of less and more. If there is an universally realised difference between “external facts and facts of consciousness,” in their status as data for scientific treatment, then surely the difference should be demonstrable from the face of the facts themselves, and ‘we’ who discern it should be left aside. Moreover, the facts, if they are data for scientific treatment, must surely either be or not be “facts of consciousness,” and cannot vary their nature by more and less. Man is not more biological than amoeba, or the mountain brook less physical than Niagara.

Ladd’s illustrations are therefore by no means free from objection,—so far, at any rate, as regards a science of “the phenomena of consciousness, as such.” We must, however, take them as they stand, and see what Ladd makes of them when he comes to technical exposition.

A man of ordinary education and intelligence, looking back on his recovery from swoon or fever-crisis, would, no doubt, be likely to report a gradual restoration of ‘consciousness:’ by which he would mean an increasing awareness, an increasing realisation and appreciation and command, of himself and his surroundings. It is precisely this varied awareness, now,

¹³ *Ibid.*, 30.

¹⁴ *Ibid.*, 3.

that Ladd intends by his own technical use of the word 'consciousness.'¹⁵ Every 'state of consciousness' with which a scientific psychology has to do is, he tells us, at one and the same time "fact of intellection, fact of feeling, fact of conation."¹⁶ Intellection is evidently a mode of awareness: whether intellection mean that universal discriminating activity which has its root in the awareness of resemblance,¹⁷ or whether it be taken to embrace the whole series of psychoses that runs from the abstract 'sensation' through perception and ideation to judgment.¹⁸ In so far, then, as every state of consciousness involves intellection, consciousness is always, in this narrower intellectual sense, awareness. Feeling too, however, is a mode of awareness; it is our very being become aware;¹⁹ and conation also is a mode of awareness, awareness of activity.²⁰ Every state of consciousness, therefore, is at once fact-awareness, value-awareness and activity-awareness,—the unitary awareness-resultant of three irreducible awareness-factors.²¹

Ladd thus obtains a starting-point for his system: but he has not adhered rigorously to his illustrations. For these states of consciousness, which are the primary data of psychology, while they all belong to some 'self' or 'I,' and indeed cannot be 'thought of' out of that connection, yet do not necessarily carry the reference to 'self' within or upon them; their consciousness is not necessarily a self-consciousness.²² The convalescent of Ladd's illustrations, on the other hand, would assuredly maintain that 'he' became increasingly conscious, 'he' and not his 'states.' It is the observer who may become increasingly aware: the 'state' or 'fact' or 'phe-

¹⁵ The two terms are not seldom used interchangeably. See, *e.g.*, *op. cit.*, 166, 290, 293ff., 296f., 300, 310, 322, 328f., 331ff., 379, 422, 517, 523f., 530f., 636; Ladd and Woodworth, *Physiol. Psychol.*, 430, 512, 681, 685. They appear, indeed, from such passages as *Psychol.*, 11, to be strictly coordinate.

¹⁶ *Psychol.*, 33, 58, 172, 264, etc.

¹⁷ *Ibid.*, 33, 288ff., esp. 293.

¹⁸ *Ibid.*, 93, 235, 251, 357, 430, etc.

¹⁹ *Ibid.*, 170. Cf. the doctrine that feeling may precede or outlast ideation (181); the illustrations offered in support of a manifold of affective qualities (*e.g.*, 170); and the doctrine that feeling is an integral factor in (not merely a determinant of, or an influence upon) knowing (53, 510ff.; *Philos. of Knowledge*, 1897, 95, 124, 165f.).

²⁰ *Psychol.*, 83, 216, 219; *Philos. of Mind*, 1895, 87ff.

²¹ 'Fact' must be understood, not in the sense of our own previous discussion [here not printed], but rather in the manner of common sense; cf. the illustrations, *Psychol.*, 17, 19, 50f., etc. For value, cf. *Philos. of Knowledge*, 124.

²² *Psychol.*, 31f., 523.

nomenon of consciousness' is, as we saw, simply conscious, and cannot become increasingly or decreasingly what it essentially is.

We are, however, not yet at the end of Ladd's account. The state of consciousness which is to be the subject-matter of psychology must, he points out, do more than merely exist; it must become an 'object of knowledge.'²³ But it can become an object of immediate knowledge only by way of introspection or self-awareness;²⁴ and since this observing activity is itself a phenomenon of consciousness, the total state of consciousness, as object of psychological knowledge, is not just awareness, but rather self-awareness, awareness of awareness. The state remains unitary. If, however, we have recourse to logical abstraction, then the second awareness, the "phenomenon [of consciousness] known as fact," may be distinguished as 'content' from the activity of observation, the "knowing of the phenomenon [of consciousness] as object."²⁵ In this way the observer is brought within the conscious field, and degrees of consciousness are so far justified.

Still we are not at an end. The 'content' thus abstractly marked off from the activity of consciousness remains consciousness, and must therefore in its turn admit of the same distinction of activity and passivity. Sensations, ideas, feelings, conations may be regarded, passively, as 'content' of consciousness.²⁶ Their description and explanation make up half of the detailed psychological story. In the other half, consciousness (conscious content in the broader sense) is regarded actively: as intellection (or awareness of likeness and difference), as reactive feeling (mental tension, conviction), as attention.²⁷ Ladd is emphatic that "the task of a scientific psychology is as truly the description and explanation of the phenomena of consciousness, considered as forms of active functioning (of consciousness 'function-wise'), as it is the description and explanation of the particular qualities and quantities of the phenomena regarded as passive states (of consciousness 'content-wise')."²⁸ And he expressly applies this dictum to the "single state of consciousness, so far as

²³ *Ibid.*, 1f., 4, 7, 9, 32, etc.

²⁴ *Ibid.*, 9, 15, 523, etc. Introspection is also called self-consciousness and reflective consciousness.

²⁵ *Ibid.*, 32f.; cf. 37, 49, 289ff. Ladd varies in his use of the terms 'active' and 'passive': see 46, 83, 96, 214, etc.

²⁶ *Ibid.*, 309. There seems to be inconsistency as regards feeling: cf. 19f, 163, 523.

²⁷ *Ibid.*, 288ff.; 308f.; 213, 289.

²⁸ *Philos. of Mind*, 86.

we can catch it and separate it from the stream of conscious life," *i. e.*, to what he has called the phenomenon known as fact, no less than to the "stream of conscious life in which every such state occurs," *i. e.*, to the total consciousness which includes the knowing along with the known.²⁹

It appears, then, that Ladd operates with two distinct notions of 'consciousness': the notion of consciousness as the sum-total of conscious states which make up the experience of an 'I,' and the notion of consciousness as the observing activity of this 'I' itself. If the states alone are conscious, there should be no more or less of consciousness: but Ladd, assimilating the conscious character of the states, their essential nature as awarenesses, to the conscious character of the observing self, is able to speak of degrees of consciousness at large. The complete datum of psychology, awareness of awareness, he regards as intrinsically unitary, but as separable by logical abstraction into awareness knowing and awareness known, activity or function and content of consciousness. The awareness known, the content-awareness, he then divides again, by the same abstraction and in the same terms, into activity or function and content. These divisions are confessedly artificial: there is no real line of division within the psychical fact: and we must suppose—since there seems to be no logical reason why they should not be repeated *ad infinitum*³⁰—that they are carried only so far as is necessary for systematic exposition. Ladd himself justifies them, partly on the ground of convenience, but also, in the general portion of his treatise, because they indicate that psychology, the science of the phenomena of consciousness as such, is far more than description and explanation of merely passive 'content.'³¹

§ 3. In seeking to appraise Ladd's definition of the psychical, as subject-matter for a science, we shall confine ourselves to a few broad lines of criticism. And we begin by consider-

²⁹ *Psychol.*, 290f.

³⁰ Brentano (*PES*, i., 1894, 167) avoids the infinite regress by means of his *eigenthümliche Verwebung*: cf. my *Exper. Psychol. of the Thought-processes*, 1909, 47f. Ladd (*Psychol.*, 35) comments critically on Brentano's fourfold act, but does not appear to recognize the logical difficulty in which he is himself involved. I do not know that every logical regress is necessarily vicious. But in this case Ladd's system is not intelligible without the regress, while the nature of the regress itself is (as it seems to me) to be unintelligible.

³¹ It follows, of course, that Ladd's 'physiological psychology' is, as psychology, only a portion of a science, and not an organized scientific whole: see Ladd and Woodworth, *Physiol. Psychol.* 381, 430, 542, 597, 625, 656, 664f.

ing (1) the place or position to which the definition assigns psychology within the group of the acknowledged sciences.

Observation, the immediate awareness of fact, seems in Ladd's view to be identical over the whole range of science. He draws no distinction of kind between inspection and introspection.³² When, however, we turn to the relation between this direct method of acquaintance and the object upon which it is directed, we find that psychology is "peculiar, and indeed unique." For observation, being itself a fact of consciousness, merges into, or fuses with, the facts of consciousness observed; "it is separable, neither in reality nor in time, from the phenomenon observed as fact."³³ Our own discussion of psychological method must be postponed. Here we note only that, as regards the relation of its primary method to its subject-matter, Ladd marks off psychology, as unique, from all the other sciences.

The subject-matter of psychology, in what (for want of a better phrase) we may call its logical constitution, is also, for Ladd, unique. The state of consciousness, it will be remembered, is always, at one and the same time, fact of knowledge, fact of feeling and fact of conation. "This unity in variety, which belongs to all states of consciousness as such, is of unique character—and this, whether we lay emphasis on the unity that comprises the variety, or upon the variety comprised in the unity."³⁴ This uniqueness of constitution, exemplified by the single state of consciousness, is attributed by Ladd to the entire course of the mental life.³⁵

Not only in logical constitution, however, but also in its self-determination, is the subject-matter of psychology unique. Descriptive and explanatory psychology leads us "to recognise a unique and self-active being" as, within limits, "interiorly

³² *Psychol.*, esp. 17f. Even the fact that psychical phenomena are "alterable—swiftly and largely—by the very act of attention which makes them objects of knowledge" seems to be paralleled on the side of inspection: see 18 (§ 3), 305f., 318f., 367f., etc.

³³ *Ibid.*, 32f., 319, 530, etc. Cf. *Philos. of Mind*, 160: "The knowing subject and the object are . . . woven into a vital oneness of being."

³⁴ *Psychol.*, 36, 172f.

³⁵ There is, namely, a "principle of continuity which gives its unique character to what we can observe of mental development. In all forms of organic physical evolution . . . the factors and stages of the evolution have some existence and value considered *in themselves*, as it were. But the case of mental development is not so. . . . Each factor, faculty, and stage exists for consciousness as in and of its own continuously flowing life-movement;" *ibid.*, 659f. The unity and variety of states of consciousness "are illustrations of this very principle of continuity as lying at the base of mental development:" 661.

determining, in a quite inexplicable way, its own course."³⁶ The presence among its data of this incalculable surd—whatever the limits of its operation may be—again separates psychology from the other sciences.

Here, then, are three points at which scientific psychology is wholly and necessarily out of touch with what should be its fellow-sciences. It is clear that the word 'science,' if it is to be retained at all, must be given an extraordinarily elastic meaning. In fact, the position which Ladd assigns to scientific psychology is a position, not within, but without the circle of the acknowledged sciences.³⁷

(2) Ladd, however, has his own definition of science. "There is science," he says, "wherever there are ascertainable facts that may be described and explained in their relation to one another and to other classes of facts."³⁸ We must therefore consider, secondly, the nature of the 'facts of consciousness' that appear in his pages as the data of a scientific psychology.

Throughout his psychological writings Ladd is insistent that the phenomena of consciousness be regarded both content-wise, as facts of passive existence, and function-wise, as facts of activity.³⁹ The task that he sets himself is, accordingly, twofold: he must describe and explain both the content and the function of every typical psychosis; and, indeed, he must describe and explain the particular content as adequate vehicle of a particular function, and the particular function as correlated activity of a particular content. This of itself would

³⁶ *Ibid.*, 638, 662. We might append, as a fourth point, the fact that psychology sustains a "quite unique" relation to philosophy: *ibid.*, 638; *Philos. of Mind*, 71.

³⁷ Ladd can be sufficiently severe upon these 'acknowledged' sciences: *e.g.*, *Philos. of Mind*, 6ff. The point here, however, is that he distinguishes psychology by its three (or four) unique characters from the other sciences, not as seen by themselves, but as he sees them.

³⁸ *Psychol.*, 658. The 'affirm' of the following sentence should apparently be read 'deny.'

³⁹ Ladd observes that "a psychosis without content is equivalent to no psychosis at all; there are no phenomena of consciousness in general" (*Philos. of Mind*, 85; cf. *Philos. of Knowledge*, 200, and *Psychol.*, 30f.). Yet he frequently speaks, in the *Psychology*, as if consciousness were, after all, something 'apart from' and superadded to the 'actual psychic facts'; we read of 'conscious psychic activity' (214), 'conscious intellection' and 'conscious mentality' (296), 'the conscious mind' (305), 'conscious mental life' (321, 469), 'conscious feeling' (583, 587), 'conscious ideation' (600), 'conscious conation' (623), 'conscious acts of will' (657), and 'conscious attention' (666f.). Similar phrases occur in Ladd and Woodworth, *Physiol. Psychol.*, 380, 463, 642, 671, 676, 679. These slips give further evidence of the unstable nature of Ladd's concept of consciousness.

be a sufficiently difficult programme; but Ladd is hampered in his undertaking by his double use (to which we have already referred) of the term 'consciousness,' which means both 'my' awareness and also the awareness intrinsic to a psychosis as such. Consider, for example, that "convenient abstraction," the sensation. Every sensation is at once active and passive, a "psychical activity" and a passively received "impression." As active, it should be actively aware, actively cognisant of the "quality belonging to the object of sense." In Ladd's account, however, it becomes, even while regarded as intrinsically active, an "item of information" to 'me,' 'my' sensations "become objectified, as my feelings and thoughts cannot, in the form of qualities of perceived *things*." The function which should be the sensation's own is thus transferred, from the sensation, to the 'me' to whom all sensations belong.⁴⁰

In this case, then, there is loss to be noted; in the case of primary intellection, on the other hand, we have a superfluity. Intellection, as actively discriminating consciousness, is "within," is "an integral part of," every state of consciousness, so that a concrete psychosis is by its very nature self-discriminating and self-discriminated. Yet if I make a state of consciousness the object of my regard, discriminating consciousness is found to "accompany" the now passive fact. It is perhaps intelligible that 'my' discriminating consciousness should be needed to discern the discriminating activity which is native to the psychosis (though it must be remembered that, as such, these two activities are identical); but it is surely not clear how this attendant discrimination of mine helps toward the discernment of the already self-discriminated 'content.' Two discriminating activities, of precisely the same kind, are here set to work in circumstances where it seems that one would be sufficient.⁴¹

In still other cases, the duplication of consciousness leads to sheer logical confusion. Suppose, for instance, that I, by way of primary attention, make a state of consciousness the passive object of my consideration: primary attention is then the degree of psychical energy "expended upon" the different aspects or moments of the state. Yet every mental state, as active, has its own degree of this same psychical energy, upon which attention, in its present turn, is constantly dependent. Ladd tries to save his logic by the remark that these two statements "only serve to approach the same truth from different

⁴⁰ *Psychol.*, 93ff.

⁴¹ *Ibid.*, 33f., 288.

sides." But the truth, as he leaves it, seems rather to be a matter of alternatives.⁴²

Difficulties of this sort recur again and again to baffle the student of Ladd's psychology. The 'facts of consciousness' with which the system deals are both ambiguous and instable. They are active and they are passive, they are forthputtings of a mind and data of a science, they are conscious and I am conscious of them. Moreover, they play their systematic parts with so little regard to omission and repetition and contradiction that the plot of the play tends to be lost.

(3) This plot itself, we must add,—the systematic working up of the psychological materials,—shows a like ambiguity. Ladd declares, for example, that the mental life, from its very beginnings, carries the plain promise of a plan, so that "no science of the life of mind is possible without recognising the presence of final purpose;" yet he affirms also that "in attempting a scientific account of the mental life psychology is justified in laying emphasis, at first, upon the passive and, as it were, externally determined side of the total development," as if no plan were visible or operative.⁴³ Here is no distinction of function and content within consciousness, but the recognition of two radically different psychological attitudes toward mind in general. The same attempt to have things both ways is seen in the treatment of the faculties: Ladd, in all literalness, both accepts and rejects the doctrine of faculties. He speaks, in formal reference, of the 'so-called' faculties; he explains that the term 'faculty' is both futile and dangerous; and still he employs the concept, repeatedly and constructively, in his psychological exposition.⁴⁴ And, as a final instance, the same criticism holds of Ladd's treatment of mental composition. He makes free use of the terms 'mix-

⁴² *Ibid.*, 74f., 78, 83, 621. On 'psychic energy' (of which Ladd gives no definition) see 39, 41, 44, 64f., 78, 83, 132, 261, 386, etc.

⁴³ *Ibid.*, 266f., 286f., 414, 664f., 668; *Philos. of Mind*, 203; *Philos. of Knowledge*, 473, etc.

⁴⁴ *Psychol.*, 33, 45f., 49ff., 60, 288, 317f. 380, 409f., 455, 490, 612, 659, 664. In particular: (1) Ch. iv. is headed "The So-called 'Mental Faculties.'" Ladd's use of 'so-called' is a mannerism, which began perhaps as a defensive reaction against the possible charge of looseness of language. Since it has come with him to mean anything from 'what is ordinarily called' to 'what is falsely called,' it does him little service. (2) The adjectives 'futile' and 'dangerous' are not too strong. For we are told (51) that words like 'faculty' do not explain; that they help but little in classification; and that their use, however guarded, is "likely to occasion. . . a generally inadequate and misleading account of the development of mental life." (3) For the seriousness with which the concept is taken, see such passages as 380, 490.

ture' and 'blending' and 'fusion' and 'association,' while yet he assures us that this language is figurative, adopted only for the avoidance of "almost unending periphrases." But is taste, or is it not, a complex of "gustatory, olfactory and tactual elements?" And is there, or is there not, in stereoscopic vision, a 'combination' of visual with tactual and motor sense-complexes? The reader looks in vain for a single periphrasis to clear his mind, and is forced to the conclusion that Ladd's logic is trying to say both Yea and Nay of the same subject-matter.⁴⁵

(4) Where both data and applied logic are thus ambiguous, it is perhaps unnecessary to urge that the resultant is not an organised system. Since, however, we are presently to discuss the working concepts of 'function' and 'content' in their general applicability to the subject-matter of psychology, we cannot afford to neglect this formal point of criticism. We note briefly that Ladd's system breaks bounds on every side.

Ladd starts out with the threefold unity of intellection, feeling and conation, all of which 'moments' or 'aspects' of consciousness are to be taken both as content and as function. These are the material postulates of his psychological system. But they prove to be inadequate. The study of intellection, for instance, brings us in time to the problem of recognitive memory; and here our scientific advance is arrested; recognition is "a form of mental reaction *sui generis*, which, while depending upon conditions . . . , has still a unique character that transcends the conditions on which it reposes."⁴⁶ In like manner the study of feeling brings us to the feeling of obligation and the sentiment of moral approbation or disapprobation. "These two forms of moral feeling are unique. Why they arise in the individual, and why they have that nature and connection with each other, and with the development of intellect, which they actually have—these are questions which psychology [even as explanatory] cannot answer."⁴⁷ Lastly, the study of conation brings us to volition, where "psychologically considered, it is no less true that I will the influential ideas, feelings and desires, than that the ideas, feelings and desires influence the final 'I will.'"⁴⁸ So that there

⁴⁵ The following sentence (*ibid.*, 235) is characteristic: "The introspective and experimental analysis of modern psychology cannot be abandoned, because, in spite of repeated explanations, some readers will persist in misunderstanding our necessarily figurative terms." Cf. 18f., 23, 37, 38f., 89ff., 94, 102f., 106, 115, 118, 132, 141ff., 146, 160, 180, 186, 209, 253ff., 318f., 323, 349, etc.

⁴⁶ *Ibid.*, 382, 397, 399, 401.

⁴⁷ *Ibid.*, 581ff.

⁴⁸ *Ibid.*, 618f., 625f., 635, 638.

is no single aspect of mind, no single strand of mental development, for which the complication of function and the compounding of content are sufficient. The system is disrupted on the side of intellect, on the side of feeling, and on the side of will.—

There can be little question, then, that Ladd has failed to erect a science of psychology on the basis of a special class or department of "phenomena of consciousness." We looked at his 'so-called' science in its general status and relations, and we found it to stand apart from all acknowledged sciences. We glanced over the contents of his exposition, and we found that his programme has not been carried out. We considered the logic of his system, and we found it no less ambiguous than the materials to which it is applied. We have now examined the result to which his systematic labours have attained, and we find him hopeless of a system. It remains to ask whether his failure is the failure of a particular author, or whether it is the failure of his psychological position 'as such.'⁴⁹

⁴⁹ The systems of Angell and Judd can be less certainly appraised, partly because they have so far been carried out only at the text-book level, and partly because their writers are more interested in function and genesis than in content. We may, however, note the following points.

For Angell, psychology is the science of consciousness, and consciousness is awareness (*Psychology*, 1908, 1, 222, 366, 442; cf. 5, 150, 185, 199, 228, 246ff., 337, 364f., 370, 373, 383ff., 399, 426ff., 430, 441ff., 444, 446). On its subject-side, consciousness is the observing activity of a self; 'we' are immediately aware of thoughts and feelings, of perceptions, images and emotions (2, 442f.; cf. 84, 302, 401, 408, 431, etc.). In its object-half, or on its content-side (content being taken in the broader sense), consciousness shows the two aspects of structure or content (in the narrower sense) and function (e.g., 201). States of consciousness are functionally unitary, but by logical abstraction may be divided into cognitive and affective (302, 436f.). [The position of attention is ambiguous. Attention appears to be a function of subject-consciousness, with a structure on the side of object-consciousness; there is apparently no discriminable attentive function within object consciousness: 80ff.] Both the cognitive and the affective functions are, in their own right, modes of awareness: the cognitive are informative (109, 170, 198, 201, 222, 248), the affective are evaluative awarenesses (302, 320, 322, 327, 378, 382). In general outline, therefore, Angell's system is very like Ladd's.

For Judd, likewise, psychology is the science of consciousness (*Psychology*, 1917, 1, 5, 10, 12, 38, 145, 309; behaviour is to be studied for the understanding and explanation of consciousness), and this consciousness is awareness (2ff., 6, 12f., 142, 238, 329; cf. 27, 65, 73, 160f., 166, 169, 183, 190, 212, 233, 246, 270, 276, 291, 345). Awareness, however, is always the awareness of 'someone'; it is 'one' or 'the observer' or 'the individual' or 'the child' that is conscious (1, 141f.,

The Functional Systems

§ 4. We pass, accordingly, to a consideration of the features common to functional systems in general.⁵⁰ There seem to be four main tenets or tendencies which we may regard as characteristic of the school.

155, 169, 189, 241, 272, 301, etc.). 'Conscious processes,' which are classified according to nervous processes (64ff.), show the familiar duality. Over against sensations (73, 188), which are discussed content-wise, stand the attitudes of feeling and attention (66f., 146f.), which are discussed functionwise. Perception includes, on the side of function, the activities of fusing, locating, distinguishing, recognizing, in a word of relating sensations (163, 166, 169, 186, 189, 191), and on the other side the product or resultant of these activities, the percept or relational fact, a content of a higher order (169, 175, 186f., 189, 191f.). The content of memory consists in images, which are primarily substitutes for sensations and percepts (241f.), and its activity consists in recall according to the laws of association (244ff.). Ideation furnishes us with contents of a still higher order, difficult of precise description (246), and with such activities as conception, abstraction, generalization, judgment and reasoning (263ff.). Lastly, in voluntary choice we have a personality, an organized whole of mental activities (308), directed upon 'ideas' which are themselves organized "composites of experience" (306, 309).

There remains the question of the 'someone' who is thus in manifold ways and degrees aware. Judd's teaching is that we must conceive the knowing self, to which the study of conscious processes leads us, as an unitary being,—a 'conscious being' which, like the 'living being,' is an organized unity (274ff.; cf. 263). The self possesses and, by unifying, modifies conscious states (274). It is, however, difficult—since the terms 'self' and 'personality' are used interchangeably—to reconcile the statement that "the self is a being which perceives and forms concepts" (274) with the statement that "personality is the name of that individual nature which has been developed out of the play and interplay of impressions and instincts and conscious comparisons and imaginations" (308). See p. 521 above.

⁵⁰ This is not the place for a bibliography of functional psychology. I give a few early references, and name two papers of objective import.—W. James, "On Some Omissions of Introspective Psychology," *Mind*, ix., 1884, 18f.; *The Principles of Psychology*, i., 1890, 478; H. Ebbinghaus, *Grundzüge der Psychol.*, i., 1897, 161ff. (i., 1905, 176ff.; changed by Dürr, i., 1911, 175ff.); E. B. Titchener, "The Postulates of a Structural Psychology," *Philos. Rev.*, vii., 1898, 449ff.; "Structural and Functional Psychology," *ibid.*, viii., 1899, 290ff.; C. A. Ruckmich, "The Use of the Term 'Function' in English Text-books of Psychology," *Amer. Journ. Psych.*, xxiv., 1913, 99ff.; K. M. Dallenbach, "The History and Derivation of the Word 'Function' as a Systematic Term in Psychology," *ibid.*, xxvi., 1915, 437ff.

Angell remarks (*Psychol. Rev.*, xiv., 1907, 63) that 'structural psychology was the first to isolate itself.' In a broad sense, that statement is true; functional psychology claimed the whole field. In historical detail, however, things are less simple. There had already appeared in America the two overtly functional systems of J. M. Baldwin (*Handbook of Psychology*, 1889-91) and Ladd (1894). Moreover, it was as early as 1887 that Ladd, in his *Physiological Psychology*,

(1) The distinction between the 'activity' or 'function' and the 'content' or 'structure' of consciousness is recognised, explicitly or implicitly, by all the psychologists of function. It reflects, of course, the biological distinction of organic function and organic structure, of physiology and morphology. We say 'biological,' in deference to current usage: in point of fact, the distinction is rather technological than scientific. It belongs of right to the great technology of medicine; it was accepted, and found useful, by human physiology; it remained serviceable in the beginnings of comparative physiology. On the strict ground of science, it is no longer adequate to our knowledge;⁵¹ and if it still persists in biological textbooks, the reason is again largely technological: the distinction recommends itself for pedagogical purposes. Even in medicine, its encouragement of a rigid specialisation lays it open to criticism.

There is, nevertheless, in the 'biological' context, a certain appeal to common sense, a certain plausibility, about this correlation; heart and lungs and hand and brain, regarded as machines, are obviously 'adapted' to the 'ends' which they subserve. We search in vain for any such plausible coördina-

sought deliberately to subsume the whole body of experimentally observed facts to a functional view of 'the nature of mind.' So that functional psychology had been a little uneasy, a little self-conscious, for a whole decade before the catch-word 'structural' came on the controversial scene. And the first note of revolt (E. W. Scripture's *New Psychology*, 1897) was struck in the physical, not in the biological key. Scripture's attempt proved abortive, partly because the physical concepts of time, space and energy were inadequate to the psychological data, and partly because he represented his new psychology as a straight development from the old: "there is no difference in its material, no change in its point of view" (453). 'Structural' psychology, as its name implies, recognized the existence of a correlative psychology of function; it isolated itself only to the degree that it demanded equal rights for content and activity, and by so doing protested against the autocracy of function. In the 'biological' atmosphere of its time the phrase did good controversial service. If the view of my book is accepted, both 'functional' and 'structural,' as qualifications of 'psychology,' are now obsolete terms.

⁵¹ As appears, e.g., from such works as H. S. Jennings' *Behaviour of the Lower Organisms* (1906), and J. S. Haldane's *Organism and Environment as Illustrated by the Physiology of Breathing* (1917); cf. also B. F. Kingsbury, "The Fitness of Organisms from an Embryologist's Viewpoint," *Science*, N. S. xxxviii., 1913, 174ff.; "The Interstitial Cells of the Mammalian Ovary; *Felis domestica*," *Amer. Journ. Anat.*, xvi., 1914, 79; "The Development of the Human Pharynx," *ibid.*, xviii., 1915, 374ff. It is obvious that those who identify biological phenomena with physicochemical processes have no need of the concept of function (see e.g., J. Loeb, *Forced Movements, Tropisms and Animal Conduct*, 1918); but this view is not here under consideration.

tion of conscious content and conscious function. The "forms of receptivity," according to Ladd, stand in "bewildering and unclassifiable variety" over against the "relatively few forms of organising activity displayed in all mental states."⁵² If content is to be made adequate to function, then (as in the instance of the 'representative image') function must be read into content, so that the content becomes an hypostatised function.⁵³ Nowhere is the attempt made to show that the strictly observable 'contents' are the suitable vehicles or instruments or substrates of the various modes of psychical activity.

Why, then,—it is natural to ask,—why, and with what hopes, did psychology submit itself at all to 'biological' guidance, and seek within its subject-matter for the analogues of organic structure and organic function? The answer refers us to historical conditions. Historically viewed, the functional psychology of which we have taken Ladd to be representative is a plea in avoidance offered before the court of science on behalf of empiricism. The continually growing body of experimental facts, menacing even while unorganised, had to be reckoned with; and the distinction of function and content afforded a means whereby it might be duly subordinated to the empirical system. If the worst should come, and experimental psychology should be able presently to organise itself as an independent science, still the empiricist had gained time, a breathing-space for adjustment, and had gained also a set of working concepts by whose aid the break might, so to say, be eased and graded. What he expected, however, as is clear from all of Ladd's work, was a new lease of life for the traditional empiricism. The particular line which his reconstruction followed was settled for him by the status of science at the time. Not mathematics, not physics, was the characteristic modern 'science,' but biology; and if biology thought and spoke in terms of structure and function, psychology need not scruple to think like thoughts and to use like language. So there arose a new empirical psychology, in all essentials at one with the old, but more or less effectively disguised under the cloak of contemporary science. After the event, we can see that psychology borrowed in haste, without assurance that the loan could be turned to properly

⁵² *Psychology*, 53ff., esp. 57.

⁵³ *Ibid.*, 234ff., 244ff., 376. D. S. Miller ("The Confusion of Function and Content in Mental Analysis," *Psych. Rev.*, ii., 1895, 536) meets the difficulty by a reference to the unlikeness of physical cause and physical effect. But content does not stand to function as cause to effect, and physical causes and effects are alike energetic.

psychological account. We can see, further, that the biology to which psychology appealed was not in truth a scientific biology, but a biology conventionalised and popularised. At the time, nevertheless, it was only natural that the contents and functions of this new empirical psychology should seem to bear the authentic stamp of science.

(2) In the second place, functional systems are disposed to correlate the phenomenon of consciousness with unreadiness or inadequacy of the nervous system; "consciousness is only intense," remarks James, "when nerve-processes are hesitant."⁵⁴ As soon as the organism is confronted by a problem which its existing neural organisation is unable to meet, consciousness steps in to dispel the perplexity; "straightway appears consciousness, with its accompanying cortical activities, taking note of the nature of the stimulus and of the various kinds of muscular response which it called forth."⁵⁵ The point must be taken, it would seem, with a certain reservation: for it is not unreadiness or inadequacy in general that is responsible for the appearance of consciousness, but rather such unreadiness and such inadequacy as require, within the biological limitations of the particular organism, only a certain additional prompting or urging to change into readiness and adequacy. With this reservation more or less expressly made, some authors, like Angell, declare in round terms that "conscious activities emerge at the point where reflex acts are found inadequate to meet the needs of particular situations;" "if the reflexes and the automatic acts were wholly competent to steer the organism throughout its course, there is no reason to suppose that consciousness would ever put in an appearance."⁵⁶ Others, like Dewey, argue that difficulties in

⁵⁴ *Principles*, i., 1890, 142. James, although he favoured a functional as opposed to a structural psychology ("The Energies of Men," *Philos. Rev.*, xvi., 1907, 2), does not give us in the *Principles* a system of functional psychology. He gives us a work on the principles of knowledge, written from a psychologistic standpoint. If his volumes are read with this interpretation in mind, the critics' charge of lack of plan (which James repelled: *Text-book*, 1892, iii. f.) will be found groundless.

⁵⁵ Angell, *Psychology*, 1918, 64.

⁵⁶ *Loc. cit.* Angell confines his discussion, in these passages, to the human consciousness. The question 'why' the human infant should be limited to a certain group of inherited coordinations he hands over to 'the biologist' for answer. So one might hand over many other questions: 'Why,' since in the last resort the environment is for all organisms the same, should any infant embark on a career for which his inherited coordinations are insufficient? and 'why,' having thus embarked, should he again meet with limitations to his conscious powers? and so on. The biologist, in so far as he is man of science, will maintain a discreet silence.

the way of nervous conduction heighten the clearness of consciousness, but do not commit themselves outright to a theory of its first appearance.⁵⁷ There are thus differences of detail.⁵⁸ It would, however, be widely agreed that, at any rate in the case of man, the 'condition' of consciousness is a temporary and corrigible imperfection of nervous organisation.⁵⁹

A view of this sort seems, indeed, to be logically bound up with the view that consciousness is primarily and actively a matter of function, and only secondarily and passively a matter of content. For if consciousness is to do us some organic service, it will find its natural opportunity in some defect of our given (non-conscious or extra-conscious) organic equipment; and this, in the categories of our current thinking, means some defect in the functional capacity of the brain. Positive evidence, however, is found in the experience of every adult. We have learned to write, to use a typewriter, to ride a bicycle, to play a piano, to drive a motor car; and we know that, as the original problems cease to baffle us, and the skilled movements become habitual, the need of conscious 'control' grows less and less; we find that consciousness 'intervenes' less frequently and less imperatively, until it may finally disappear. Could there be more convincing proof of the instrumental function of consciousness? and is not the

⁵⁷ So at least I understand these discussions. See J. Dewey, "The Theory of Emotion," *Psychol. Rev.*, i., 1894, 553ff.; ii., 1895, 13ff.; "The Reflex Arc Concept in Psychology," *ibid.*, iii., 1896, 357ff.; "The Psychology of Effort," *Philos. Rev.*, vi., 1897, 43ff.

⁵⁸ The same general idea has been expressed in various places by W. McDougall. See, *e.g.*, "A Contribution towards an Improvement in Psychological Method," *Mind*, N. S. vii., 1898, 159ff.; "On the Seat of the Psycho-physical Processes," *Brain*, xxiv., 1901, 607f.; "The Physiological Factors of the Attention-Process," *Mind*, N. S. xi., 1902, 341f.; *Physiological Psychology*, 1905, 59f.

It is possible that Ladd is adopting a like view when he makes conation or conscious striving "the most fundamental of all psychic phenomena" (*Psychol.*, 219). Ladd and Woodworth, however, combat the theories of Dewey and McDougall (*Physiol. Psychol.*, 1911, 610ff.).

⁵⁹ Judd ("Evolution and Consciousness," *Psychol. Rev.*, xvii., 1910, 77ff.) forms a marked exception to the rule. Consciousness appears only when the organism has attained a certain stage of complexity of inner organization (94). The question of first causes—where this consciousness comes from—is not raised (92). Having appeared, however, consciousness functions as a centre of reorganization (93f.) The more highly organized, *i.e.*, the more self-sufficing the organism, the greater is the rôle and the higher the development of consciousness (80f., 88). In a word, consciousness is at once the product, the index, and the cause of organization.

formation of a habit typical of the general course of the mental life?⁶⁰

We must here meet the psychologist of function on his own ground; we must, that is to say, grant him his assumption that consciousness, the subject-matter of psychology, is awareness. The question then arises whether our conscious life is, as a matter of fact, nothing more than a recurrent grappling with problems. Are we aware only when and in so far as we are searching, reconciling, reducing to familiar terms, trying to understand,—or whatever other words there may be that imply the setting of a problem and the urgency of its solution? Surely we are not; surely there is a contemplative as well as an acquisitive awareness. We are not always learning something new, or practising this new until it becomes old. There are times when we sun ourselves, as it were, in the full light of consciousness,—times when, without any “felt necessity for further nicety of adaptation to surroundings,”⁶¹ we are none the less keenly and competently aware. There is a consciousness militant, but there is also a consciousness triumphant: more than that, there is a consciousness that, in the midcourse of its campaigning, rests quietly upon its arms, and surveys the terrain it has occupied. A narrowly instrumental theory of consciousness comes very near to a *reductio ad absurdum* of the biological ‘struggle for existence.’

(3) The two characters that we have so far discussed—the distinction within consciousness of content and activity and the assignment to consciousness, especially in its active phase, of a value for organic survival—lie on the surface of the functional systems. Underneath, always and everywhere, runs the steady current of teleology. It is one of the ironies of the history of science that the great biological generalisation which was to free us of teleology in our study of the phenomena of life should give rise, in post-Darwinian days, to an unbridled license of teleological ‘interpretation.’⁶² Biology

⁶⁰ Judd is here consistent. “Too often the psychology of habit has been guilty of the statement that habituation leads to unconsciousness. This is not the case” (*Psychol.*, 1917, 207).

⁶¹ Angell, *Psychol.*, 1908, 74. Note the implication of the phrase! Consciousness, which might on Angell’s terms be described, roughly, as the “felt process of adaptation,” here anticipates its own function.

⁶² “If we apprehend the spirit of the ‘Origin of Species’ rightly, then, nothing can be more entirely and absolutely opposed to Teleology, as it is commonly understood, than the Darwinian Theory.” T. H. Huxley, “Criticisms on ‘The Origin of Species’” (1864), *Lay Sermons, Addresses and Reviews*, 1887, 264. It is a mind “stored with the choicest materials of the teleologist that rejects teleology,”—so J. Tyndall speaks of Darwin (*Report B. A. A. S.*, 1874, 1875, lxxxvi.). Cf. E. du Bois-Reymond, *La Mettrie*, 1875, 23.

has suffered, and is still suffering, from that license. Biology, nevertheless, again furnished psychology with the obvious scientific parallel. Biologists spoke in terms of final cause, the whole system of biology was pervaded by teleology, and psychology again had no call to be more scientific than science. We have seen the outcome in Ladd's thinking: a teleological activity of organisation plays upon a causally (or quasi-causally) determined content, to the inevitable confusion of the concept of consciousness which is fundamental to his psychology at large. We find a like ambiguity in Angell's book. Mind, as we have said, there "seems to involve the master devices" through which the "adaptive operations of organic life may be made most perfect," and "the real business of consciousness is to be sought amid the adaptive responses of the organism to its life conditions."⁶³ But when we go in search of master-devices and real business we are told that the basal distinction is that "between certain kinds of nervous activity overtly involving consciousness . . . and certain other kinds not overtly involving it;" consciousness is only the "index" of "problem-solving adaptive acts." Nay more: if we speak "as though mind might in a wholly unique manner step in and bring about changes in the activity of the nervous system," we are employing "convenient metaphors," "a convenient abbreviation of expression," which must not blind us to "the fundamental facts which lie behind."⁶⁴ Such are the logical sacrifices that teleology demands of her children!

May it not be, however, that the fault lies with the children? May it not be that the psychologist of function takes his teleology a little carelessly? It has come down to him from the older empiricism; it is guaranteed by philosophy and technology; it is justified by biological example. Small wonder, then, that he should slip easily, even heedlessly, into the teleological attitude! But are we on that account ruthlessly to banish teleology from a scientific psychology?

One could wish, certainly, that the functional systems were somewhat less confident of their position. For it is one thing to affirm broadly that "the stream of consciousness appears . . . as a current designed from the beginning . . . to the fit performance of a certain work,"⁶⁵ and quite another thing to build psychological facts and laws, the details of psychology, into a coherent system of means and ends. The

⁶³ *Op. cit.*, 8, 95.

⁶⁴ *Ibid.*, 59f., 300.

⁶⁵ Ladd, *Psychol.*, 668f.

teleology which is used in psychology as a tool of scientific construction is, as a matter of fact, both clumsy and double-edged. The psychologist may insist on final causes as he will, but he never makes them adequate to the refinement of observation;⁶⁶ and he may answer any number of Whys, but he is still faced by unanswerable Why-nots that throw doubt upon his positive explanations.⁶⁷ Yet we must insist that final causes, if they are at all recognised in psychology, be recognised primarily for psychology's sake. It is not enough to infuse just so much of teleology into the psychological system as shall orientate us toward ethics or history, or place us within a generally biological context, or blur the difference between 'pure' and 'applied' science. Psychology has its own claims in behalf of every item of its subject-matter.⁶⁸

There is, however, no reason to suppose that these claims could be met by any teleology, even the most self-conscious and the most persistent. The whole history of science argues to the contrary. We may freely grant that teleological ideas have the occasional heuristic value which certain investigators

⁶⁶ "Fortunately for science," writes Judd (*Psychol.*, 90f.), "there have been a few cases in which the same person has been able to observe directly both the normal color sensations and the partially color-blind series." Fortunately for descriptive science, truly: but how fortunate for psychology in Judd's sense? How has the development of red-green vision aided man in the struggle for existence(4)? or what has man gained by the "unique compromise process"(92) which gives rise to the purple sensation? These and like questions are not touched.

⁶⁷ "It is because we have . . . no special organ affected by weak currents of electricity that men overlooked for so long a period both the prevalence of forms of electrical energy and the close relation between light and electricity" (Judd, *op. cit.*, 72). But, granted that the facts are as stated and granted that this furtherance of knowledge is useful, why have we not the special organ?—for it is surely evident that biological conditions, which have produced the 'electric fishes,' are also competent to produce an electrical sense-organ in man.

Again: "We do not have microscopic eyes like the fly. Nor . . . do we have distance vision like the eagle's. . . . The range of human vision has been determined by the range of possible human reactions" (132); cf. W. H. Hudson, *Idle Days in Patagonia*, 1893, 183 f. But has not man extended his reactions by microscope and telescope, and are not tools (249) sensory as well as motor? Cf. H. Spencer, *Principles of Psychol.*, i., 1881, § 164, 365; O. Wiener, *Die Erweiterung der Sinne*, 1900.

⁶⁸ How utterly this subject-matter may drop out of sight, under the prepossession of teleology, appears in the discussion by A. E. Taylor, *Elements of Metaphysics*, 1903, 306f.

have claimed for them.⁶⁹ It remains true, notwithstanding, that these same investigators have only by exception had recourse to teleology, and have not been encouraged to adopt it as a guiding principle of research. It remains true that final causes have long been banished from the domain of the older sciences, and that they flourish only where (and in proportion as) exact knowledge is wanting. It remains true that interpretation by means and end tends to close enquiry and thus to bar the progress of scientific knowledge. In particular, it is highly significant that biology, after full trial of teleological principles, is in these latter days resolutely turning away from final causes to the laborious planning of experiments and the patient accumulation of observed facts,—so that ‘evolution’ and ‘heredity’ and ‘adaptation,’ once the means whereby we conjured ends, are now coming to be mere descriptive labels for laboratory note-books. The whole history of science thus goes to show that teleology is essentially non-scientific. And, if that is the case, there can be no room for “teleological import” within a “*science of the life of the mind*.”⁷⁰

(4) Finally, this teleological attitude threatens the stability of psychology as an independent branch of knowledge. The psychology of the functional systems appears as transitional, as a stage either upon the difficult ascent toward philosophy or upon the level road that leads to various application; always it appears as a half-way house on the journey to something else, and not as an abiding-place. The individual psychologist may look forward to the one goal or to the other, or may perhaps keep both in view; that is a matter of temperament and training. It is at any rate characteristic of the school that they are not content to rest in psychology. Their psychologising, with whatever pains and seriousness it is done, seeks to transcend itself, as if in the last resort it were done not for its own sake but for the attainment of some foreign end.

Ladd, for instance, bears witness on the side of philosophy. “The problems of philosophy,” he tells us, “all emerge and force themselves upon the mind in the attempt thoroughly to comprehend and satisfactorily to solve the problems of a scientific psychology; and the attempts, along the different main lines of research in psychology, to deal scientifically with

⁶⁹ E. Mach, *Die Analyse der Empfindungen*, etc., 1900, 60f. The instance cited is not physical but biological. I do not find in the *Erkenntnis und Irrtum* (1906) any acknowledgment of the heuristic value of teleology in physics, though the book as a whole contains a good deal of teleological thinking.

⁷⁰ Ladd, *Psychol.*, 668.

its problems all lead up to the place where this science hands these same problems over to philosophy."⁷¹ Psychology is therefore of value as a propaedeutic to philosophy, in so far as philosophy is too difficult and too intricate to be approached directly and without an introductory easement; but the psychologist cannot, in scientific status, compare with the physicist or chemist or biologist. On the contrary! The longer he works in psychology, the more clearly does he confess his inability to tackle his problems at first hand; and the more able he is, the briefer will be his psychological apprenticeship to philosophy.

Judd, on the other hand, lays stress on the importance of psychology for the understanding and consequent control of human life and human institutions. He devotes a chapter of his general *Psychology* to the maxims of 'mental hygiene,' by following which the individual may attain to the highest level of organisation, "when mental development becomes a matter of voluntary control." He devotes another chapter to the institutional applications of psychology, its usefulness in literature and the fine arts, in the social sciences and anthropology, and especially in education. He recognises, to be sure, that psychology's relation to philosophy is "closer than that of any of the special sciences," but the recognition is formal and carefully qualified. The main interest of the study of consciousness is that it gives the key to human nature, and thus enables us intelligently to guide the course of the individual and of society.⁷²

There is no need of further examples, but there is great need that the reader clearly understand what these particular examples are meant to show. The point here at issue is not that the author of a scientific text-book should shut himself up within the four walls of his specialty, and look neither above nor about. Where we find such narrowness of vision, we are likely to find also confusion of thought. The point is rather that we note a marked difference of emphasis between text-books of functional psychology and text-books of other sciences. A text-book of physics will discuss various types of engines and machines, but it will discuss them as illustrative of physical laws. A text-book of physiology may discuss various types of pathological phenomena, but it will discuss them in connection with physiological methods and

⁷¹ *Philos. of Mind*, 1895, 73; *Psychol.*, 12. Cf. J. R. Angell, "The Relations of Structural and Functional Psychology to Philosophy," in *The Decennial Publications of the University of Chicago*, iii., 1903, 55ff.; *Psychol.*, 1908, 9ff.

⁷² *Psychol.*, 1917, 314ff., esp. 324, 344ff.; cf. 10, 208, 268, 299f., 309.

physiological principles. The text-books of functional psychology, on the other hand, tend—it is true, in varying degree—to make of psychology either an introduction to philosophy or an aid to individual and social welfare. In so far as these tendencies prevail: in so far as functional psychology, in its exposition of psychology proper, goes out to meet the problems of philosophy or of our customary human life: in so far there is real danger that the pains and seriousness which are the due of psychology as science are withdrawn from psychology and expended in those other fields.—

These, then, seem to be the four main characteristics of the functional systems. The subject-matter of psychology is duplicated, though function is preferred to content; consciousness is a solver of problems; the whole course of the mental life is regarded teleologically; and psychology is written as a preface to philosophy or to some practical discipline. We have already indicated that these characters are not logically coördinate. A logical arrangement might, however, have appeared to prejudge the case, whereas our topical presentation has required that every character be discussed on its individual merits. In any case it should now be plain that functional psychology has its roots in the Aristotelian empiricism, and that while it has taken color of modernity from the surrounding sciences it has not adopted the modern conception of science itself. For this reason Ladd's deliberate and sustained effort to maintain the continuity of psychology as science was foredoomed to failure. His loyalty to the past is incompatible with his open-mindedness toward the future. He recognises, frankly if a little anxiously, the gradual emergence of the scientific problem, yet he cannot bring himself to discard, even in what he defines as science, the constructions of prescientific thinking. He is thus betrayed into an illogicality which, in any other context, he would have been among the first to discern.